

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Appl. No. : 10/552,808

Applicant(s): Bernhard Gleich

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Examiner: Vani Gupta

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Title: DEVICE AND METHOD FOR EXAMINATION AND USE OF AN
ELECTRICAL FIELD IN AN OBJECT UNDER EXAMINATION
CONTAINING MAGNETIC PARTICLES

APPEAL BRIEF

Honorable Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal dated **June 24, 2010**, Applicants provide the following Appeal Brief in the above-captioned application.

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1. Real Party in Interest

The real party in interest as assignee of the entire right and title to the invention described in the present application is Koninklijke Philips Electronics, N.V., having a principal place of business at Groenewoudseweg, 1Eindhoven, NL 5621 BA.

2. Related Appeals and Interferences

There are no known related Appeals or Interferences to the present application.

3. Status of the Claims

Claims 1-14 are pending in the application. Claims 1-14 are rejected and are the subject of the present Appeal Brief. Rejected claims 1-14 are reproduced in the Appendix.

4. Status of the Amendments

A final Office Action was mailed on March 24, 2010. A response under Rule 116 was filed on May 24, 2010. An Advisory Action was mailed on June 7, 2010. There are no pending amendments in the application.

5. Summary of the Claimed Subject Matter¹

Referring to claim 1:

In accordance with a representative embodiment, a device (e.g., 1, Fig. 1) for examination and use of an electrical field in a magnetic gradient field, containing magnetic particles in an examination area (e.g., A, Fig. 1) of an object under examination, comprises: at least one first arrangement (e.g., 2, Fig.1) for determining the spatial distribution of magnetic particles in at least one examination area of the object under examination, comprising a means (e.g., 14, Fig. 1) for generating a magnetic field with

¹ In the description to follow, citations to various reference numerals, drawings and corresponding text in the specification are provided solely to comply with Patent Office Rules. It is emphasized that these reference numerals, drawings and text are representative in nature, and in not any way limiting of the true scope of the claims. It would therefore be improper to import any meaning into any of the claims simply on the basis of illustrative language that is provided here only under obligation to satisfy Patent Office rules for maintaining an Appeal.

such a spatial magnetic field strength profile that a first sub-zone with low magnetic field strength and a second sub-zone with higher magnetic field strength are produced in at least one examination area (e.g., A), a means for detecting signals which depend on the magnetization in the object under examination, especially in the examination area, influenced by a local change in the particles, together with a means for evaluating the signals to obtain information about the, especially time-variable, spatial distribution of the magnetic particles in the examination area. The device also comprises at least one second arrangement (e.g., 8, Fig. 1), comprising at least one electrical transmit and/or receive unit (e.g., 6, Fig. 1), comprising at least one voltage generator (e.g., 22, Fig. 2), at least one terminal contact (e.g., 18, Fig. 2) connected to the voltage generator (e.g., 22) and applicable and/or fastenable to an object under examination, and a ground terminal (e.g., 20, Fig. 2) applicable and/or fastenable to an object under examination. (Kindly refer to page 18, line 3 through page 19, line 13 and Figs. 1 and 2 of the filed application.)

6. Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed on Appeal are:

1. The rejection of claims 1-14 under 35 U.S.C. § 103(a) as allegedly being obvious over *Kraus, Jr., et al.* (U.S. Patent 6,470,220) and *Wang, et al.* (U.S. Patent 6,940,286).

7. Argument

Rejection under 35 U.S.C. § 103(a)

Claims 1-152 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over *Kraus, Jr., et al.* (U.S. Patent 6,470,220) and *Wang, et al.* (U.S. Patent 6,940,286). For at least the reasons set forth below, Applicants respectfully submit that all claims are patentable over the applied art.

² The undersigned notes that claim 15 was listed in the rejection on page 2 of the Office Action. This appears to be a typographical error as claim 15 was not elected for examination at this time and was cancelled. Clarification is respectfully requested.

A. The applied art fails to disclose all features of claim 1

A *prima facie* case of obviousness has three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, requires some reason that the skilled artisan would modify a reference or to combine references.³ The Supreme Court has, however, cautioned against the use of “rigid and mandatory formulas” particularly with regards to finding reasons prompting a person of ordinary skill in the art to combine elements in the way the claimed new invention does.⁴ But rather the Supreme Court suggests a broad, flexible “functional approach” to the obviousness analysis recognizing that “[i]n many fields it may be that there is little discussion of obvious techniques or combinations.”⁵ Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the same time the invention was made. In other words, a hindsight analysis is not allowed.⁶ Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims.⁷

i. Claim 1:

Claim 1 recites:

³ See Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332 (Fed. Cir. 2005) (“[S]imply identifying all of the elements in a claim in the prior art does not render a claim obvious.”).

⁴ See KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007) (“The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”).

⁵ Id. See also Id. at 1743 F. 3d 1356 (Fed. Cir. 2006) (“Our suggestion test is in actuality quite flexible and not only permits, but *requires*, consideration of common knowledge and common sense”) (emphasis in original).

⁶ See Amgen, Inc. v. Chugai Pharm. Co., 927 F.2d 1200 (Fed. Cir. 1991) (“Hindsight is not a justifiable basis on which to find that ultimate achievement of a long sought and difficult scientific goal was obvious.”).

⁷ See In re Wilson, 424 F.2d 1382 (C.C.P.A. 1970) (“All words in a claim must be considered in judging the patentability of that claim against the prior art.”).

A device (1) for examination and use of an electrical field in a magnetic gradient field, containing magnetic particles in an examination area of an object under examination, comprising

- a. at least one first arrangement (2) for determining the spatial distribution of magnetic particles in at least one examination area of the object under examination, comprising a means (14) for generating a magnetic field with such a spatial magnetic field strength profile that a first sub-zone with low magnetic field strength and a second sub-zone with higher magnetic field strength are produced in at least one examination area, a means for detecting signals which depend on the magnetization in the object under examination, especially in the examination area, influenced by a local change in the particles, together with a means for evaluating the signals to obtain information about the, especially time-variable, spatial distribution of the magnetic particles in the examination area; and*
- b. at least one second arrangement (8), comprising **at least one electrical transmit and/or receive unit (6), comprising at least one voltage generator (22), at least one terminal contact (18) connected to the voltage generator and applicable and/or fastenable to an object under examination, and a ground terminal (20) applicable and/or fastenable to an object under examination.***

In rejecting claim 1, the Office Action concedes that *Kraus, Jr., et al.* fails to disclose ‘the second arrangement’ and turns to *Wang, et al.* in an attempt to cure the conceded deficiency in *Kraus, Jr., et al.* While Applicants do not necessarily concur that *Kraus, Jr., et al.* teaches all features of claim 1 asserted in the Office Action, Applicants nonetheless respectfully submit that a proper rejection for obviousness has not been established for at least the reasons set forth below.

In rejecting claim 1, the Office Action directs Applicants to Fig. 1, the Abstract and column 4, lines 60-65 of *Wang, et al.* for the alleged disclosure of the features of the second arrangement of claim 1. Applicants respectfully demur. Notably, while the Abstract, Fig. 1 and column 4, lines 60-65 do disclose electrical excitation sources 4, which in column 5 are denoted as voltages, there is no disclosure of a *transmit and/or*

receive unit comprising a voltage source, as specifically recited in claim 1. Applicants note that while a number of “electrical excitation sources, such as current or voltages 4, are applied to one or more electrical contacts 2” is disclosed at column 5, lines 15-20 of *Wang, et al.*, these are not a part of a transmit and/or receive unit as specifically recited in claim 1.

Furthermore, the Office Action asserts that the featured ground terminal is a matter of design choice, for safety purposes to prevent the electrocution of the patient during examination. This assertion is flawed for at least two reasons.

First, claim 1 recites *a ground terminal (20) applicable and/or fastenable to an object under examination*. By the Examiner’s reasoning for design selection, the selection of the object under examination would not be connected to the ground, but rather connected elsewhere to ensure preventing current from traveling through the patient for safety purposes. Thus, the Examiner’s rationale of using preventing electrocution of a patient would direct one skilled in the art to not connect the ground terminal to the patient for safety’s sake; whereas claim 1 specifically features this connection.

Second, a claim rejection must be based on **objective evidence** of record, and cannot be supported merely on subjective belief and unknown authority.⁸ In the present case, the Examiner asserts that the ground terminal is merely a design choice. While reference is made to the dictionary definition of a “ground” there is no evidence presented as to why this substantiates the claim of design choice set forth in the Office Action. Furthermore, and as noted above Examiner’s rationale of using preventing electrocution of a patient would direct one skilled in the art to not connect the ground terminal to the patient for safety’s sake; whereas claim 1 specifically features this connection.

Accordingly, Applicants again respectfully submit that no concrete evidence supporting this position has been provided by the Examiner here, nor did the Examiner

⁸ See, e.g., M.P.E.P. § 2144.03; *In re Lee*, 277 F.3d at 1344-45, 61 USPQ2d at 1434-35 (Fed. Cir. 2002); *In re Zerko*, 258 F.3d at 1386, 59 USPQ2d at 1697.

submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) if this proposed motive of design choice were based on facts within his personal knowledge (see M.P.E.P. § 2144.03). Applicants respectfully request that such an affidavit be provided if a rejection continues to be made without a citation of any objective evidence.

In the Advisory Action, the Examiner asserts that the claim language is given its broadest possible reasonable interpretation. *See* Advisory Action, p. 2. The Examiner thus concludes the claim language is broad enough to encompass either the connection of the ground terminal to the patient or application of the ground terminal within the vicinity of the patient. The Advisory Action further states:

“Cited prior art suggests that the ground terminal is APPLICABLE to the patient, as the claim clearly states. It is applicable in the sense that it is directing current away from the patient to avoid electrocution.”

See Advisory Action, p. 2 (emphasis in original).

However, it is well established that, “[d]uring patent examination, the pending claims must be ‘given their broadest reasonable interpretation consistent with the specification.’” *See* MPEP 2111 (emphasis added) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005)). More particularly, the *Phillips* Court stated as follows:

The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 CFR 1.75(d)(1).

Id. (emphasis added).

Applicants respectfully submit that the broad interpretation that the ground terminal is applicable within the vicinity of the patient is not reasonable in view of the specification as filed. Notably, ground terminal 20 is shown in Fig. 2. The voltage present between signal terminal contact 18 and ground terminal contact is detected by means of a voltage measuring apparatus. The ground terminal contact 20 is clearly shown in contact, and not merely in vicinity of the patient. Applicants respectfully submit that no reasonable review of the specification would reach the understanding that the ground terminal contact is merely in the vicinity of the patient.

For at least the reasons set forth above, Applicants respectfully submit that the applied art fails to disclose at least one feature of claim 1. Therefore, a *prima facie* case of obviousness has not been established, and claim 1 is patentable over the applied art. Moreover, claims 2-14, which depend immediately or ultimately from claim 1, are patentable for at least the reasons set forth below.

Conclusion

In view the foregoing, applicant(s) respectfully request(s) that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance.

If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted on behalf of:
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APPENDIX

Claims on Appeal

1. A device (1) for examination and use of an electrical field in a magnetic gradient field, containing magnetic particles in an examination area of an object under examination, comprising
 - a. at least one first arrangement (2) for determining the spatial distribution of magnetic particles in at least one examination area of the object under examination, comprising a means (14) for generating a magnetic field with such a spatial magnetic field strength profile that a first sub-zone with low magnetic field strength and a second sub-zone with higher magnetic field strength are produced in at least one examination area, a means for detecting signals which depend on the magnetization in the object under examination, especially in the examination area, influenced by a local change in the particles, together with a means for evaluating the signals to obtain information about the, especially time-variable, spatial distribution of the magnetic particles in the examination area; and
 - b. at least one second arrangement (8), comprising at least one electrical transmit and/or receive unit (6), comprising at least one voltage generator (22), at least one terminal contact (18) connected to the voltage generator and applicable and/or fastenable to an object under examination, and a ground terminal (20) applicable and/or fastenable to an object under examination.
2. A device (1) as claimed in claim 1, characterized in that the second arrangement (8) comprises at least one pair of contact electrodes (4), especially a plurality of pairs of contact electrodes, for recording potential differences.
3. A device (1) as claimed in claim 1, characterized by at least one voltage measuring unit (24) and/or current measuring unit (26).
4. A device (1) as claimed in claim 1, characterized in that the voltage generator (22), the voltage measuring unit (24) and/or the current measuring unit (26) may be brought into or are in active connection with a microprocessor or computer.

5. A device (1) as claimed in claim 1, characterized in that the voltage measuring unit (24) and/or the current measuring unit (26) is/are equipped with at least one analog filter, measuring amplifier, A/D converter and/or digital filter.
6. A device (1) as claimed in claim 1, characterized in that a measuring voltage in the range of from 10 to 200 V may be generated with the voltage generator (22).
7. A device (1) as claimed in claim 1, characterized by at least one frequency converter.
8. A device (1) as claimed in claim 1, characterized in that the means (14) for generating the magnetic field comprise a gradient coil arrangement for generating a magnetic gradient field which reverses direction in the first sub-zone of the examination area and exhibits a zero crossing.
9. A device as claimed in claim 1, characterized by a means for generating a time-variable magnetic field superimposed on the magnetic gradient field for the purpose of displacing the two sub-zones in the examination area.
10. A device as claimed in claim 1, characterized by a means, in particular at least one coil arrangement, for changing the spatial position of the two sub-zones in the examination area, such that the magnetization of the particles varies locally.
11. A device as claimed in claim 1, characterized by a means, in particular a coil arrangement, for changing the spatial position of the two sub-zones in the examination area by means of superimposition of an oscillating or rotating magnetic field, especially in the first sub-zone with low field strength.

12. A device as claimed in claim 1, characterized by a coil arrangement for receiving signals induced by the variation over time of the magnetization in the examination area.

13. A device as claimed in claim 1, characterized by at least one means for generating a first and at least one second magnetic field superimposed on the magnetic gradient field, wherein the first magnetic field may be varied slowly over time with a high amplitude and the second magnetic field may be varied rapidly over time with a low amplitude.

14. A device as claimed in claim 13, characterized in that the two magnetic fields in the examination area may also extend substantially perpendicularly to one another.

APPENDIX

Evidence

(None)

APPENDIX

Related Proceedings

(None)